



Spectral Gamma-Ray Borehole
Log Data Report

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Borehole

40-07-01

Log Event A

Borehole Information

Farm : <u>S</u>	Tank : <u>S-107</u>	Site Number : <u>299-W23-160</u>
N-Coord : <u>36,062</u>	W-Coord : <u>75,642</u>	TOC Elevation : <u>665.65</u>
Water Level, ft :	Date Drilled : <u>10/31/1971</u>	

Casing Record

Type : <u>Steel-welded</u>	Thickness : <u>0.280</u>	ID, in. : <u>6</u>
Top Depth, ft. : <u>0</u>	Bottom Depth, ft. : <u>97</u>	

Borehole Notes:

The borehole was drilled in October 1971 and completed to a depth of 100 ft with 6-in.-diameter casing. The driller's log does not mention perforations or grout. Therefore, it is assumed that the borehole was not perforated or grouted. The casing wall thickness is assumed to be 0.280 in., based on the published thickness for schedule-40, 6-in. steel casing.

The driller's log indicates that a count rate of 3,000 counts per minute was measured at a depth of 3 ft, but that there was no activity at a depth of 4 ft. No information is provided as to the type of instrument used, but it is assumed that 3,000 counts per minute was considered anomalously high.

The zero reference depth for the SGLS logs is the top of the casing.

Equipment Information

Logging System : <u>2</u>	Detector Type : <u>HPGe</u>	Detector Efficiency: <u>35.0 %</u>
Calibration Date : <u>05/1996</u>	Calibration Reference : <u>GJPO-HAN-5</u>	Logging Procedure : <u>P-GJPO-1783</u>

Log Run Information

Log Run Number : <u>1</u>	Log Run Date : <u>06/07/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>0.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>52.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>

Log Run Number : <u>2</u>	Log Run Date : <u>06/10/1996</u>	Logging Engineer: <u>Alan Pearson</u>
Start Depth, ft.: <u>99.0</u>	Counting Time, sec.: <u>100</u>	L/R : <u>L</u> Shield : <u>N</u>
Finish Depth, ft. : <u>51.0</u>	MSA Interval, ft. : <u>0.5</u>	Log Speed, ft/min.: <u>n/a</u>



Borehole

40-07-01

Log Event A

Analysis Information

Analyst : D.L. Parker

Data Processing Reference : P-GJPO-1787

Analysis Date : 03/10/1997

Analysis Notes :

This borehole was logged in two log runs using a centralizer. The pre- and post-survey field verification spectra for each log run met the acceptance criteria established for peak shape and system efficiency. The energy and peak-shape calibration from pre-survey field verification spectra were used to establish the channel-to-energy parameters used in processing the spectra acquired during both log runs.

Casing correction factors for a 0.280-in.-thick casing were applied during the analysis.

Cs-137 was the only man-made radionuclide detected in this borehole. Cs-137 contamination was detected continuously from the ground surface to a depth of 27.5 ft and from 39.5 to 43.5 ft. Cs-137 contamination was also detected at 52.5 and 99 ft (bottom of the borehole). The maximum Cs-137 concentration below the ground surface was 7 pCi/g at a depth of 4.5 ft.

The logs of the naturally occurring radionuclides show an increase in the KUT concentrations at a depth of about 49.5 ft. The KUT concentrations increase again below a depth of about 63 ft.

Details concerning the interpretation of data for this borehole are presented in the Tank Summary Data Reports for tanks S-104 and S-107.

Log Plot Notes:

Separate log plots show the man-made and the naturally occurring radionuclides. The naturally occurring radionuclides can be used for lithology interpretations. The headings of the plots identify the specific gamma-rays used to calculate concentrations.

Uncertainty bars on the plots show the statistical uncertainties for the measurements as 95-percent confidence intervals. Open circles on the plots give the minimum detection limit (MDL). The MDL of a radionuclide represents the lowest concentration at which positive identification of a gamma-ray peak is statistically defensible.

A combination plot includes both the man-made and naturally occurring radionuclides, the total-count log plot, as well as the Tank Farm gross-gamma log. The Tank Farm gross-gamma plot displays the latest available digital data. No attempt has been made to adjust the depths of the gross gamma log plot to coincide with the SGLS data.